UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KIM CASCONE, SEAN M. COSTELLO,
NICHOLAS J. PORCARO, TIMOTHY S. STILSON, and
SCOTT A. VAN DUYNE

Appeal 2007-0931
Application 10/040,653
Technology Center 2600

Decided: July 25, 2007

Before JOHN C. MARTIN, JOSEPH L. DIXON, and
HOWARD B. BLANKENSHIP, *Administrative Patent Judges.*
DIXON, *Administrative Patent Judge.*

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the Examiner's Final Rejection of claims 1-5, 9-14, and 16-50. Claims 6-8 have been allowed by the Examiner, and claim 15 has been canceled. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

BACKGROUND

Appellants' invention relates to a statistical sound event modeling system and methods. An understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced below.

1. A method of synthesizing a complex sound, comprising:

generating a plurality of different kinds of simpler sound events in a sequence of simpler sound events, with repetitive occurrences of at least some of said kinds, and with random time delays after a simpler sound event is generated until the next simpler sound event is generated, and

combining said successive simpler sound events into said complex sound.

PRIOR ART

The prior art references of record relied upon by the Examiner in rejecting the appealed claims are:

Borza	US 6,215,874 B1	April 10, 2001
Severson (Severson '431)	US 5,832,431	Nov. 03, 1998
Severson (Severson '318)	US 5,267,318	Nov. 30, 1993

REJECTIONS

Claims 1 to 4, 9 to 14, 16 to 18, 21 to 26, and 28 to 50 stand rejected under 35 U.S.C. 102(b) as being anticipated by Severson '431. Claim 5 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Severson '431 in view of Borza. Claims 19, 20, and 27 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Severson '431 in view of Severson '318.

Rather than reiterate the conflicting viewpoints advanced by the Examiner and the Appellants regarding the above-noted rejection, we make reference to the Examiner's Answer (mailed Nov. 7, 2006) for the reasoning in support of the rejections, and to Appellants' Brief (filed Oct. 4, 2006) and Reply Brief (filed Sep. 28, 2006) for the arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to Appellants' Specification and claims, to the applied prior art references, and to the respective positions articulated by Appellants and the Examiner. As a consequence of our review, we make the determinations that follow.

35 U.S.C. § 102

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. Inc. v. Union Oil Co.,* 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

From our review of the Examiner's statement of the rejection and the teachings of Severson '431, we find that the Examiner has set forth a prima facie case of anticipation of independent claim 1. We find the Examiner has shown a corresponding teaching in Severson '431 for each of the recited claim limitations, and we look to Appellants' Brief for persuasive argument of error in the prima facie case.

We find that Severson '431 teaches a non-looped continuous sound by random sequencing of digital sound records. (Severson '431 title). Severson '431 additionally teaches:

> Several short segments of an otherwise continuous sound are recorded and stored in a digital memory. The stored segments are concatenated together to form a sound sequence of arbitrary length, based on selecting the next sound segment according to some statistical algorithm. The selected algorithm may be simply a random or pseudo-random selection, or it may provide a probability weighting to emphasize some sound records over others, or some combination of factors also affected by external stimuli such as light, heat or operator input. Apparatus for generating random sequenced digital sound are disclosed. Another aspect of the invention is logical sequence sound in which the selection of sound segments proceeds according to a logical sequence which is programmable.
>
> (Severson '431 Abstract).

> Severson '431 additionally teaches:
>
> Non-looped Continuous Sound by Random Sequencing of Digital Sound Records can be abbreviated in name to Random Sequenced Sound, and further abbreviated as RSS. RSS, at its core, consists of taking several short segments of an otherwise continuous sound, and making independent records of each of these short segments. Then these independent segments are re-assembled into a continuous,

never-repeating sound sequence based on selecting the next sound segment according to some statistical algorithm. This statistical algorithm itself may be chosen by various circumstances (such as the passage of time, or the coincidence with some other sound effect, changes in ambient light, heat, operator input of some sort, etc.) or perhaps selected from a library of algorithms in a deterministic or random way. Also, there are RSS situations where you will want to switch from one set of sound segments to an alternate set of sound segments. Examples might be birds in the morning and crickets at night. Or, perhaps, crickets until a model train comes by and then barking and howling dogs. There may or may not be specific silent pauses inserted between each record, depending on the desired effect. Also, the sound segments may be sequenced in a logical but statistical way depending on the content of the previous sound record or other inputs to the system.

(Severson '431 col. 2, ll. 28-51).

Severson '431 also teaches:

The RSS effects described so far have all been produced from pre-recorded fixed sound segments. The next type of method to produce even greater levels of depth and realism in producing continuous sound effects is to create the RSS sound segments "on-the-fly" logically from a finite library of sound fragments through overlay dubbing and sequencing with a microprocessor or Digital Signal Processing (DSP) integrated circuit. This type of effect might be described using a "Cow Feedlot" effect as an example. The way LSS works is that the computer will have a library of cow moos, such as (long low moo), (short low moo) (long high moo), (short high moo), (gasping moo), (upward inflected moo), (downward inflected moo), (stuttering moo), (curious moo), etc. Also, in the library might be a selection of stomping and eating sounds and a selection of background sounds (i.e. kid yelling, dog barking, water trough filling, chewing and munching, etc.) Now, the computer has algorithms (mathematical plans) of how to put together endless variations of sound segments based on probable logical responses. For instance, if a dog-barking

> record is played, it increases the likelihood of another dog-barking record or more sound from cows. If kids are yelling, there is a greater chance of more kids yelling or if the last record played is the sound of kids leaving, then the likelihood of another kid record is reduced. If a record is played that is the sound of a trough filling with water, then the computer likely may next produce a chorus of 3-5 selected cows followed by a couple of single cows with overlaid kicking and stomping. In other words, each sound segment or combined group of sound segments is weighted by its logical likelihood of occurrence based on the previous sound records. Each segment will be built sequentially from a set of statistical rules which would produce an interesting and never-repeating Cow Feedlot effect. In some cases what occurs is that the selection of sounds to be over-dubbed, or the equalization or special effect given one or more over-dubbed parts will be modified--based on what sounds have been previously played. Very complex patterns of sounds can be produced that have a casual history based on previous records and other inputs that evolve in time in a logical and probably but unpredictable manner.
>
> (Severson '431 col. 7, l. 56-col. 8, l. 29).

From the above teachings of Severson '431, we find all the limitations recited in independent claim 1 are taught by Severson '431, where the silent pauses or absences of sound are one of the basic sound segments that are logically combined to create the random sequences on the fly to cause a delay between simpler sound events. Therefore, we find that the Examiner has set forth a prima facie case of anticipation by the teachings of Severson'431. Therefore, we look to the Appellants' arguments in the Brief and Reply Brief to identify an error in the prima facie case.

Appellants contend that:

> Although the time between repeats of the same kind of segment is varied randomly in Severson et al. ('431), it is clear from the patent's specification that, for any given segment, the time at which the next segment in the overall sequence begins (regardless of the kind of segment represented by the next segment) is right at the end of the given segment. Accordingly, there is no randomness as to when the next segment occurs in time relative to the immediately preceding segment; randomness attaches only to the time delays between repeats of the same kind of segment.
> (Br. 6).

We disagree with Appellants that there is no randomness as to when the next segment occurs in time relative to the immediately preceding segment. We find that Severson '431 teaches the use of the silent pauses in the Logical

Sequenced Sound (LSS) that produce a never repeating effect. (Severson '431 col. 7, l. 55- col. 8, l. 61). Additionally, Severson '431 teaches that the LSS may also be event driven with time as a consideration for events (col. 8, l. 66-67).

Appellants argue that:

> In Severson et al. ('431) a series of sound segments, which may be chosen randomly, are taken from an otherwise continuous sound and re-assembled into a continuous sound sequence. Each segment begins right after the end of the immediately preceding segment, with no overlaps or gaps between immediately successive segments. By contrast, in the preferred embodiment of the present invention, simple sound events are combined into a complex sound with random time delays between generating a simpler sound event and generating the

> next simpler sound event in the sequence (not the next segment of the same kind as in Severson et al. ('431)). This can result in multiple sound events overlapping, or in gaps between successive events, unlike Severson et al. in which the sound segments are continuous and sequential. Although Severson et al. refers to the possibility of "silent pauses" between sound segments, such pauses would be deliberately inserted and not the result of any random selection (column 2, lines 46-48)
> (Br. 6-7 and *see generally* Reply Br. 4-5).

We disagree with Appellants and note that the embodiment disclosed at page 9, lines 16-18 of Appellants' Specification teaches that the entire sequence of delays can be generated first, and then the events triggered according to the sequence. We find this similar to the sequence taught by Severson '431. We find that to have a sequence that is not repeating and random as taught in the LSS, the silent pauses would also be randomly dispersed in the sequence and deliberately placed in those random time slots.

Here, we find that Appellants contend that there may be overlapping sound events at a single instant in time or gaps in the generating of the sound events that are different than silent pauses of Severson '431. (Br. 6-7 and Reply Br. 4). We disagree with Appellants and find no express language in independent claim 1 to support this contention. Therefore, Appellants' argument is not persuasive. Appellants' contention that the claimed invention may have overlapping sound events which combine to create a more complex sound event due to the combination or gap is additionally not persuasive since we find that Severson '431 also teaches the combination of more than a single sound at any instant as a combination or more complex sound and the use of silent periods. Severson '431 teaches the use of a

selection of background sounds (col. 8, l. 3) and cows with overlaid kicking and stomping (col. 8, l. 16) which we find to be a combination or combining of sounds. Therefore, we do not find that Appellants have shown error in the Examiner's prima facie case of anticipation, and we will sustain the rejection of independent claim 1 and independent claim 35 grouped therewith by Appellants and their respective dependent claims 2-4, 9, 11-14, 29-34 and 36-46.

If Appellants intended to claim the processing of the data on-the-fly and then overlay another set of data, starting at a different time or with a different periodicity on top of a first set while the first set is being audibly output, then Appellants should have amended the claim language to specifically reflect such a desire. Here, we find the Examiner's interpretation of the instant claim language to be reasonable and the application of the prior art thereto to also be reasonable.

With respect to dependent claim 10, Appellants argue that dependent claim 10 emphasizes the distinction between the Severson '431 with no delay between successive segments and claimed invention. We find no argument by Appellants which addresses the statement of the rejection by the Examiner. Therefore, we find no error in the Examiner's prima facie case and sustain the rejection of dependent claim 10.

With respect to dependent claim 16, Appellants argue that the values of parameters of the sound events are randomly varied and that Severson '431 nor any other references known to applicants disclose or suggest this feature (Br. 9-10). We disagree with Appellants' conclusion and note that the sub-segments of sound will be slightly different to provide variability in

the horn sound and that some aspect of the sound generation varies with changes in the frequency of use, loudness, pitch, reverb, and treatment of over-dubbed sounds (Severson '431 col. 7, ll. 12-19 and col. 9, ll. 7-16). We find that the statistical variation of Severson '431 teaches the use of random variation in parameters of the sounds events as recited in dependent claim 16.

Appellants argue that the Examiner's reliance upon Severson '431 and the randomness between individual notes is different from the parameters of the claimed invention and those parameters are randomly varied for the entire sound event (Reply Br. 2-3 and 7). We do not find this argument is commensurate in scope with the claimed invention. We find that any change based on a random note change would have caused a random variation in the sound event. We find no express limitation in the language of dependent claim 16 that the variation must entail the entire sound event. Therefore, Appellants' argument is not persuasive, and we will sustain the rejection of dependent claim 16 and claims 17, 18, 21-26, and 28 grouped therewith by Appellants.

With respect to independent claim 50 and dependent claims 47 and 48, the Examiner maintains that the delays are random and that they are independent of the sound events (Answer 8-9). We agree with the Examiner that the random delays or silent pauses are not dependent on the durations of the sound events. Therefore, Appellants' argument is not persuasive and Appellants have not shown error in the Examiner's prima facie case of anticipation. Therefore, we will sustain the rejection of independent claim 50 and dependent claims 47 and 48 grouped therewith by Appellants.

With respect to independent claim 49, Appellants contend that the trigger time delays in Severson '431 are totally dependent on the durations of the segments. We disagree with Appellants. Additionally, we find that Appellants do not address the merits of the rejection as set forth in the Answer at pages 6-7. Therefore, Appellants' argument is not persuasive, and we will sustain the rejection of independent claim 49.

Obviousness

With respect to dependent claims 5, 19, 20 and 27, Appellants rely upon the same argument advanced with respect to independent claim 1 which we did not find persuasive. Finding no separate argument for patentability, we will sustain the rejection under 35 U.S.C. § 103(a) of dependent claims 5, 19, 20, and 27.

CONCLUSION

To summarize, we have sustained the rejection of claims 1 to 4, 9 to 14, 16 to 18, 21 to 26, and 28 to 50 under 35 U.S.C. § 102, and we have sustained the rejection of claims 5, 19, 20, and 27 under 35 U.S.C. § 103(a).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

MARTIN, *Administrative Patent Judge*, dissenting.

For the following reasons, I would (a) enter a new ground of rejection of all of the appealed claims under 35 U.S.C. § 112, second paragraph, for indefiniteness and (b) reverse the prior art rejections pursuant to *In re Steele*, 305 F.2d 859, 862-63, 134 USPQ 292, 295 (CCPA 1962) (reversing § 103 rejection because based on speculation and assumptions regarding the meaning of the claim).

Whether a claim is indefinite under 35 U.S.C. § 112, second paragraph, is a question of law. *Atmel Corp. v. Info. Storage Devices*, 198 F.3d 1374, 1378, 53 USPQ2d 1225, 1227 (Fed. Cir. 1999).

The first step of claim 1 reads: "generating a plurality of different kinds of simpler sound events in a sequence of simpler sound events, with repetitive occurrences of at least some of said kinds, and with random time delays after a simpler sound event is generated until the next simpler sound event is generated." I agree with Appellants that this claim language is referring to adjacent simpler sound events. *See* Br. 6. ("[T]here is no randomness [in Severson '431] as to when the next segment occurs in time relative to the immediately preceding segment; randomness [in Severson '431] attaches only to the time delays between repeats of the same kind of segment.").

The indefiniteness arises because the above-quoted claim language appears to require a random time delay between the *end* of each simpler sound event and the *beginning* of the next simpler sound event, i.e., gaps of random length between successive simpler sound events. Appellants

contend otherwise, arguing that "the referenced claims do not require that the random time delays are either *between* the same kind of sound events or different kinds of sound events" (Reply Br. 3) (emphasis added). According to Appellants, the claimed invention "enables overlapping of, or gaps between, successive simpler sound events, but does not require any such overlapping or gaps." (Reply Br. 4). This argument implies that the random time delays concern the starting times of the sound events, which presumably have respective fixed durations.[1] This construction arguably conflicts with the language of claim 1, although it is consistent with the language employed in independent claim 49 ("generating a plurality of different kinds of simpler sound events in a sequence of simpler sound events with respective delays between the trigger times of successive simpler sound events in said sequence"). However, even assuming for the sake of argument that claim 1 should be construed as reciting random time delays between the starting times of the simpler sound events, it is not understood how "a sequence" (i.e., series) of simpler sound events can include overlapping sound events, as argued by Appellants. Does each of the different kinds of simpler sound events have a respective sequence (i.e., series) of sound events?

For the foregoing reasons, claim 1 is indefinite. These criticisms also apply to independent claims 35 and 50.

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[1] The Examiner, discussing Severson '431, found that "the overall duration of [a] sound effect is fixed in a library of sound effects." (Answer 7.)

Claim 1 is also indefinite in other respects. There is no clear antecedent basis for "said successive simpler sound events" in the second step, which reads: "combining said successive simpler sound events into said complex sound." Does "said successive simpler sound events" refer to all of the simpler sound events in "a sequence of simpler sound events," recited in the first step? If so, it remains unclear what is encompassed by the second step of the claim. It would appear that generating "a sequence" of different kinds of simpler sound events, as recited in the first step, inherently combines the successive simpler sound events in the sequence into a complex sound.

Turning now to independent claim 49, as with claim 1 it is not clear what is encompassed by the last step, which calls for "combining said simpler sound events into said complex sound."

Thus, all of the independent claims are indefinite. The dependent claims do not remove the above ambiguities.

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